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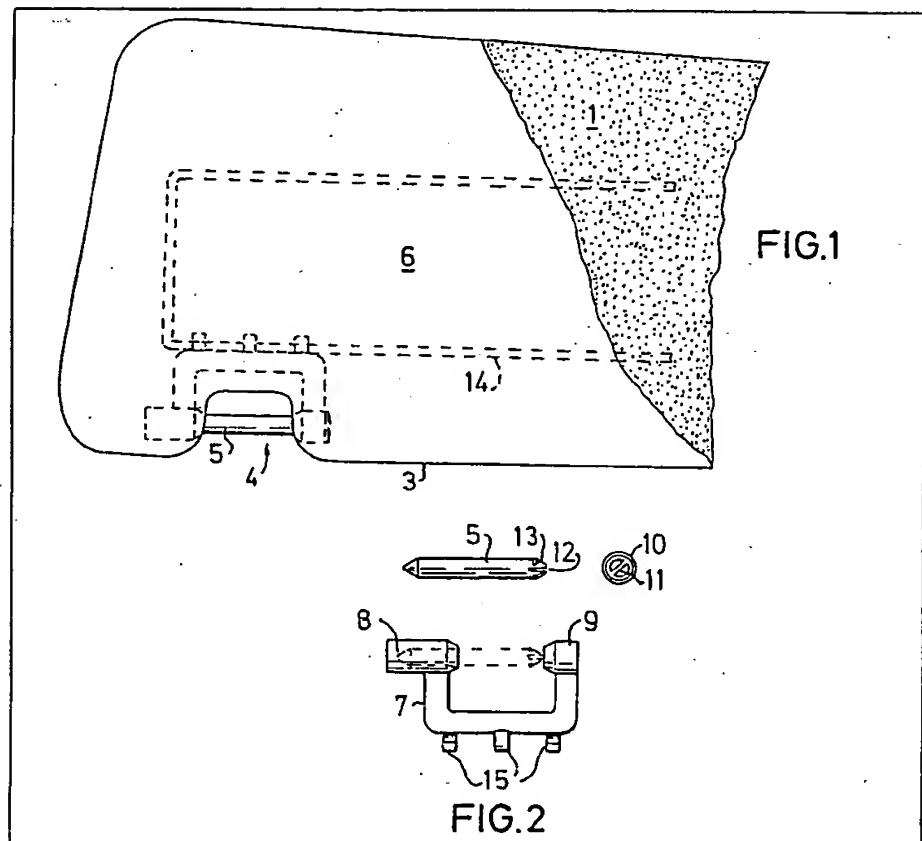
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(54) Method of manufacturing a sun visor for motor vehicles

(57) The sun visor consists of a compressible plate 1 covered with a plastic sheeting, the plate having a recess 4 in the side edge of the plate with a pin 5 and fixed in the plate on opposite sides of the recess. A U-shaped yoke 7 with bushings 8, 9 for the pin is cast in the plate. The plate is covered with the plastic sheeting 6

before the pin is mounted, so that the sheeting covers the openings of the bushings, whereafter the sheeting is punctured in front of the openings and the pin is mounted by inserting one pin end into one of the bushings a certain distance and thereafter inserting the other pin end into the other bushing a shorter distance, whereupon it snaps into engagement and is locked against axial and rotational movement.



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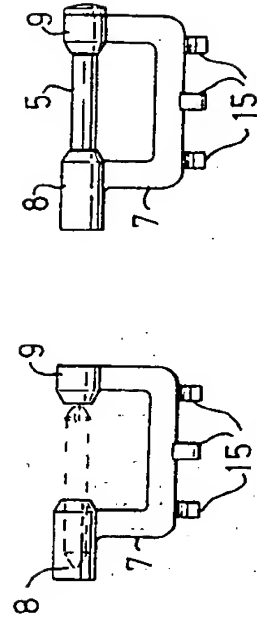
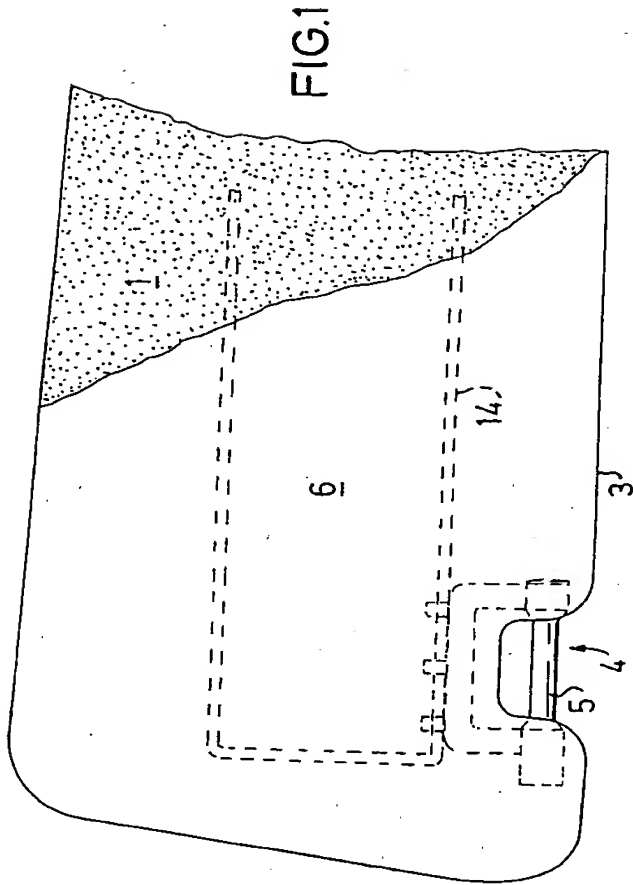


FIG.3

FIG.2

SPECIFICATION

Method of manufacturing a sun visor for motor vehicles

The present invention relates to a method of manufacturing a sun visor for motor vehicles which consists of a compressible plate covered with plastic sheeting, said plate having at least one recess in the side edge of the plate, a pin extending across said recess and being fixed in the plate on opposite sides of the recess. The invention also relates to a device for carrying out the method.

A common method of manufacturing a sun visor of the above mentioned type, in which the plate consists of cast foamed plastic, is to cast the pin in place when the visor is cast. In the subsequent application and welding of the plastic sheeting, the pin is enveloped by the sheeting, at the same time as the recess is covered by the sheeting. After cutting away the excess sheeting in the recess, there remains around the pin a plastic sheet covering with two longitudinal welds on opposite sides of the pin, which means that the pin will not have an entirely circular cross section.

When such a pin is rotated in its bearing when folding the sun visor up or down, the risk is great that the plastic sheeting will be broken by chaffing. Another disadvantage is that the resistance to swinging down will not be uniform since the pin is not entirely round. In order to avoid these disadvantages, it is possible to strip the sheeting from the pin when cutting away the recess, but this involves the addition of a relatively time-consuming work-step, thus increasing production cost. Furthermore, the sheeting must seal tightly around the pin at the anchoring points in the sides of the recess — which is difficult to achieve — in order to achieve an aesthetically acceptable result.

The purpose of the present invention is to achieve a simple method of removing the above-mentioned disadvantages.

This is achieved according to the invention by providing the plate with holes for the pin and covering the plate with plastic sheeting before the pin is mounted, so that the sheeting covers said holes, and by puncturing the sheeting in front of the holes, whereafter the ends of the pin are inserted through the sheeting into the holes in the sides of the recess.

By seeing to it that the sheeting is punctured so that the holes made are smaller than the thickness of the pin, the sheeting can be pinched securely between the pin and the plate, so that the sheeting will seal tightly against the pin and guarantee that the sheeting will not open up in the region around the ends of the pin. The process is particularly simple if the pin is pointed at the ends, since the pin itself can then be used to puncture the sheeting.

In a further development of the method, designed particularly to be applied to sun visors consisting of a plate of relatively soft plastic, a yoke of rigid material with bushings for the pin

ends is fixed in the plate around the recess prior to covering the plate with sheeting, whereafter the ends of the pin are inserted into the bushings after holes are made in the sheeting. The yoke also serves here to reinforce the area around the recess.

A yoke with pin for carrying out the method is characterised in that the yoke has a U-shaped portion, at the leg-ends of which there are opposing bushings for the pin, the distance between the bushings and their axial lengths being adapted to each other and to the lengths of the pin so that one end of the pin can first be inserted in one bushing a certain distance and thereafter its other end into the other bushing a shorter distance to a fixed position in which both pin ends are fixed in the respective bushing.

The invention will be described in more detail with reference to an example shown in the accompanying drawing.

Fig. 1 shows a plain view of a portion of a sun visor made by the method according to the invention, and Figs. 2 and 3 show a yoke with a pin both disassembled and assembled, respectively.

The sun visor consists of a plastic body 1 of relatively soft foamed plastic 2, for example. On one longside 3 there is a recess 4, across which a pin 5 extends and is fixed in the plastic body 1. The pin is designed to be snapped into a bearing in the ceiling of the vehicle above the windshield. The plastic body 1 is covered on both sides by layers of plastic sheeting 6 which are welded to each other along the edges of the body 1.

In the plastic body, a U-shaped yoke 7 is cast. At the leg-ends of the yoke there are bushings 8 and 9 for the pin 5. Bushing 8 is longer than bushing 9, as is clearly revealed in the Figures, and the length of the pin 5 is adapted to the distance between the facing ends of the bushings (corresponding to the width of the recess 4), so that the pin 5 when it strikes the bottom of the bushing 8 assumes the position indicated with dashed lines in Fig. 2. From this position, the pin can be inserted into the right-hand bushing 9 until it strikes the bottom thereof which is formed of a separate cap 10 with a ridge 11. The pin is inserted oriented in relation to the ridge 11 so that when the pin reaches the bottom, the ridge slips into a slot 12 in the end of the pin, thus fixing the pin against rotation. In order to achieve axial fixing of the pin, it is provided with a peripheral bead 13 on either side of the slot. Furthermore, the bushing 9 bore is made with a mouth portion of smaller inner diameter than the outer diameter of the bead and a bottom portion with the same or somewhat larger diameter than the bead (not shown). By virtue of the fact that the pin end is slotted in the area of the bead, it can be compressed when it is pressed into the narrow bore portion and then expand behind the narrow portion so as to provide snap-locking.

When manufacturing the sun visor the yoke 7 is cast (in a sun visor of foamed plastic) in the plastic body, so that the facing ends of the bushings 8, 9

are flush with the facing sides of the recess 4. The yoke can then be arranged, as in the embodiment shown, to hook onto a reinforcing steel-wire 14 placed in the plastic body 1, with alternating,

- 5 oppositely facing hooks 15. The plastic body is then covered on both sides with a layer of plastic sheeting, which is welded around the edges of the plastic body and trimmed. After this operation, the openings of the bushings are covered by the
10 sheeting, which is punctured in front of the openings, either by a separate tool or directly by the pointed ends of the pin in connection with the mounting of the pin 8. Both the foamed plastic body 1 and the yoke 7 made of a more rigid plastic
15 are sufficiently flexible to allow enough lateral displacement between the bushings 8, 9 as required to permit one end of the pin to be inserted into the bushing 8, whereby the degree of lateral displacement is determined by the play of
20 the pin in the bushing 8. Finally, the opposite pin end is inserted in the bushing 9, and the pin is fixed both against rotation and against axial displacement.

- 25 An advantage of the method described over a method in which the pin is fixed with groove fastenings is that it simplifies an automated assembly since only one loose part need be handled.

CLAIMS

- 30 1. Method of manufacturing a sun visor for motor vehicles, which consists of a compressible plate covered with plastic sheeting, said plate having at least one recess in the side edge of the plate, a pin extending across said recess and being fixed in the
35 plate on opposite sides of the recess, characterized in that the plate is provided with holes for the pin and is covered with plastic sheeting prior to mounting of the pin, so that the sheeting covers said holes, and in that the
40 sheeting is punctured in front of the holes, whereafter the ends of the pins are inserted through the sheeting into the holes in the sides of the recess.

2. Method according to Claim 1, characterized

- 45 in that the sheeting is punctured and the ends of the pin are inserted into the holes, so that the sheeting is folded in and pinched between the pin and the edges of the hole.

3. Method according to Claim 2, characterized
50 in that the pin is made with pointed ends which are used to make holes in the sheeting when the pin is mounted.

4. Method according to one of Claims 1-3, characterized in that a yoke of more rigid material
55 than the plate and with bushings for the ends of the pin is fixed in the compressible plate about the recess prior to covering the plate with the sheeting, whereafter the ends of the pin are inserted into the bushings after holes are made in
60 the sheeting in front of the ends of the bushing which face each other.

5. Yoke with pin for carrying out the method according to Claim 3, characterized in that the yoke has a U-shaped portion, at the leg-ends of
65 which there are opposing bushings for the pin, the distance between the bushings and their axial lengths being adapted to each other and to the length of the pin so that one end of the pin can first be inserted in one bushing a certain distance
70 and thereafter its other end into the other bushing a shorter distance to a position in which the pin is fixed axially.

6. Yoke with pin according to Claim 5, characterized in that at least one pin end and the
75 associated bushing have interacting parts, which fix the shaft against rotation relative to the yoke.

7. Yoke with pin according to Claim 5 or 6, characterized in that at least one pin end and the
80 associated bushing have interacting parts which form a snap lock for fixing the pin axially relative to the yoke.

8. Yoke with pin according to Claim 6 and 7, characterized in that one pin end is slotted axially
85 and has a peripheral bead, which together with an internal portion of the associated bushing with reduced diameter, forms the snap lock, and that the bottom of the bushing has a ridge which can be inserted into the slot in the end of the pin to fix the pin against rotation.